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NOTES ON LEGUMINOSAE. I.

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Summary

The species known generally as *Acacia ligulata* is a subspecies of *A. bivenosa* DC. and the combination *A. bivenosa* subsp. *wayi*, based on *A. salicina* Lindl. var. *Wayae* Maiden, is made. *A. bivenosa* subsp. *bivenosa* and subsp. *wayi* are not sharply differentiated. *A. elliptica* A. Cunn. ex Benth. and *A. bivenosa* var. *borealis* Hochr. are synonyms of *A. bivenosa* subsp. *wayi*. *A. mimula* Pedley is a new name for *A. propinqua* Pedley non A. Rich. *A. dissoneura* F. Muell. is a synonym of *A. dineura* F. Muell.

Prosopis glandulosa Torr., *P. juliflora* (Sw.) DC., *P. juliflora* (Sw.) DC. × *P. velutina* Woot. and *P. limensis* Benth. are naturalized in Australia. A key to distinguish them is given.

A key to the five species of *Lysiphyllum* found in Australia is provided. New combinations are *L. carronii* (F. Muell.) Pedley based on *Bauhinia carronii* F. Muell., *L. hookeri* (F. Muell.) Pedley, based on *B. hookeri* F. Muell., and *L. gilvum* (F. M. Bailey) Pedley based on *B. cunninghamii* Benth. forma *gilva* F. M. Bailey.

Caesalpina robusta (C. T. White) Pedley is a new combination based on *Mezoneuron robustum* C. T. White and *C. subtropica* is a new name for *C. brachycarpa* (Benth.) Hattink non (A. Gray) Fisher.

Daviesia flava Pedley and *D. discolor* Pedley are described and distinguished from *D. arborea* W. Hill, *D. latifolia* R.Br. and *D. mimosoides* R.Br. *D. corymbosa* does not occur in Queensland.

A key to the six Queensland taxa of *Mirbelia* is given. *M. speciosa* subsp. *ringrosei* (F. M. Bailey) Pedley, based on *M. ringrosei* F. M. Bailey, is a new combination. *M. confertiflora* Pedley is a new species that has previously been confused with *M. aotoides* F. Muell.

Stylosanthes sundaica Taub. is conspecific with *S. humilis* H.B.K. which is naturalized in Queensland.

Three new names in *Tephrosia* are: *T. spechtii* Pedley, *T. rufula* Pedley and *T. benthamii* Pedley based on *T. purpurea* (L.) Pers. var. *axillaris* Baker fil., *T. purpurea* var. *rufescens* Benth. and *T. rosea* F. Muell. ex Benth. var. *angustifolia* Benth. respectively. *T. delestangii* and *T. virens* are described as new.

MIMOSOIDEAE

ACACIA MILL.

1. A note on *A. bivenosa*

The species generally known as *Acacia ligulata* is one of a group of related taxa widely spread in arid and semiarid areas of Australia. In the eastern part of its range it is a well defined species but in the Northern Territory and Western Australia it exhibits a considerable range of variation, complicated in Western Australia by the presence of a number of related species. In an attempt to determine the extent of the variation within the species and to distinguish it from allied species, specimens of the following taxa were examined: *A. bivenosa* DC.,

A. cupularis Domin, *A. elliptica* A. Cunn. ex Benth., *A. ligulata* A. Cunn. ex Benth., *A. pallidiramosa* Maiden & Blakely, *A. rostellifera* Benth., *A. salicina* Lindl. var. *wayae* Maiden, *A. scirpifolia* Meisn., *A. sclerosperma* F. Muell., *A. tysonii* Luehm. and *A. xanthina* Benth.

Some of the taxa are well defined, but considerable integrading occurs among others and there are many intermediates. Detailed consideration of all species is beyond the scope of this note, especially as my experience of *Acacia* in Western Australia is more or less confined to the study of herbarium specimens. I am grateful therefore to Mr. B. R. Maslin (PERTH) who has commented on the species of *Acacia* in the vicinity of Shark Bay and on the identity of the types of *A. ligulata* and *A. elliptica* which he examined at Kew. His opinions have been helpful and have influenced me, but I am solely responsible for the treatment of *A. bivenosa* below.

The following key is merely a guide to the identification of the taxa studied:

1. Phyllodes rather thin (not coriaceous), not coarsely wrinkled when dry, rather narrow and elongate, obscurely penninerved, a second longitudinal nerve often faintly developed. *A. rostellifera*

   Phyllodes thick, coriaceous, coarsely wrinkled when dry, a second longitudinal nerve developed when phyllode more than (7–)10 mm wide. 2.

2. Phyllodes narrow, thick, uninerved; pod much contracted between and convex over the seeds, valves hard. *A. sclerosperma & A. scirpifolia*

   Phyllodes broader, not as thick, sometimes with more than one nerve; pods neither convex over seeds nor woody. 3.

3. Phyllodes broad, 2–nerved, yellowish or glaucous; racemes more than 5–branched; flowers large, calyx 1 mm or more long. *A. xanthina*

   Phyllodes 1– or 2–nerved, yellowish or glaucous; racemes with fewer than 5 branches or peduncles axillary; the calyx less than 1 mm long. 4.

4. Plants tomentose (hairs spreading); heads always on axillary peduncles. *A. tysonii*

   Plants glabrous or with sparse appressed hairs, heads on axillary peduncles or in axillary racemes. *A. bivenosa*

Acacia ligulata

A. ligulata A. Cunn. ex Benth., Lond. J. Bot. 1:362 (1842) **Syntypes:** Dirk Hartog I., Jan 1822, *Cunningham* (K); New Holland, *Fraser* (K, not seen).

I have seen one syntype (*Cunningham*), a fragmentary specimen with less wrinkled and shorter phyllodes than is usual in the plant usually known as *A. ligulata.* It bears two pods and the structure of the inflorescence is difficult to determine. It is apparently a raceme of heads. The label of the specimen lacks the collecting details usually found on Cunningham's specimens and has only a pencilled label "4/323" on one twig. From Cunningham's manuscripts it was found that it was collected on King's 4th voyage on Dirk Hartog Island and should bear the number 326 (Maslin, *in litt.*). I have not seen Fraser's specimen but a specimen labelled "N. Holld. Fraser" determined by Bentham as *A. salicina* was located by Maslin under *A. salicina.* It is probably the other syntype. Maslin has tentatively referred this specimen to *A. rostellifera,* and has suggested that Cunningham's specimen might also be referred to *A. rostellifera* or to a taxon somewhat intermediate between *A. "ligulata"* and *A. rostellifera.*

Bentham (1864) treated *A. ligulata* as a synonym of *A. salicina.* Black (1920) discussed the matter and concluded that *A. ligulata* and *A. salicina* were not conspecific. It is now likely that *A. ligulata* and *A. rostellifera* might be conspecific, though their relationship to *A. bivenosa* is obscure.

Acacia bivenosa

Herbarium material shows variation in three characters, all of which contribute to the general facies of the plant. The characters are: (a) dimensions of phyllodes; (b) number of longitudinal nerves of the phyllode; (c) arrangements of heads, in racemes or single on axillary peduncles.

Narrow phyllodes have a single nerve, broader ones two, or rarely, three; and there is a highly significant correlation between the width of the phyllode and the development of the second nerve. The width at which the transition from 1– to 2–nerved phyllodes occurs is 7–10 mm; that is, phyllodes more than 10 mm wide have two nerves; phyllodes less than 7 mm wide have one; while phyllodes 7–10 mm wide can have one or two nerves. Uni– and binerved phyllodes sometimes occur on one twig.

The arrangement of heads also varies. Plants with narrow phyllodes tend to have heads in racemes, but there is no absolute correlation between the width of phyllodes and the development of racemes. Plants with broad, binerved phyllodes sometimes have racemose heads. Axillary heads and racemes of heads are sometimes found on the one plant. Racemes sometimes grow out into leafy branches so that the peduncles become lateral on vegetative shoots.

Because of the range of variation delimitation of taxa is difficult but, because the variation of one character is correlated with variation of other characters, at least in the majority of cases, and because there is some geographical segregation of combinations of characters it is possible to distinguish two subspecies.

A. bivenosa from the north-western coast of Western Australia and what is currently known as *A. ligulata* from western New South Wales have been treated as subspecies. There is clinal variation from south-east to north-west with a distinct steepening of the cline towards the north-west. The recognition of two subspecies may be somewhat artificial but as the zone of intergrading between the two is small it enables all but a small proportion of plants to be referred to one or other of the subspecies.

The subspecies are distinguished as follows:

Phyllodes 2-nerved, 2–5 cm long, (0·7–)0·8–2·2 cm wide, usually less than 3·5 times as long as wide; heads on axillary peduncles more than 12 mm long, or less commonly in axillary racemes, or rarely inflorescences of both types. *A. bivenosa* subsp. *bivenosa.*

Phyllodes usually 1–nerved, 2–10 cm long, 0·3–1(–1·6) cm wide 3–7 times as long as wide; heads in axillary racemes, the branches less than 12 mm long. *A. bivenosa* subsp. *wayi.*

Acacia bivenosa DC., Prod. 2:452 (1852), Leg. Mem. 448 (1827) ("binervosa"). **Type:** Nouv. Hollande côte orient., Mus. de Paris, 1821 (G-DC, holo; BM, iso)

A. elliptica A. Cunn. ex Benth., Lond. J. Bot. 1:347 (1842) **Lectotype:** Bay of Rest, Feb $\frac{158}{1818}$, *Cunningham* (K)

A. bivenosa DC. var *borealis* Hochr., Candollea 2:376 (1925). **Type:** Broome, Feb 1905, *Hochreutiner* 2828 (G, holo)

A. bivenosa subsp. **bivenosa**

Phyllodes usually 2–nerved, 2–5 cm long, (7–)8·5–22 mm wide, usually less than 3·5 times as long as wide. Heads on axillary peduncles more than 12 mm long or less commonly in axillary racemes, or both.

A. bivenosa subsp. *bivenosa* is not sharply differentiated from *A. bivenosa* subsp. *wayi,* but the circumscription of the subspecies allows the inclusion of plants with unusual combinations of characters. Definition of a taxon in such an arbitrary way may be theoretically undesirable but it enables a name to be applied to plants somewhat intermediate between *A. bivenosa* subsp. *wayi* (narrow phyllodes and heads in racemes) and most plants of *A. bivenosa* which have broad phyllodes and heads on axillary peduncles. It is also necessary so that there is no doubt about the application of the name. *A. bivenosa* the type of which which is itself rather intermediate.

The type specimen is clearly labelled "côte orient" and was cited by de Candolle as such in both the Prodromus and the Memoires sur la Famille des Legumineuses, where the species was referred to in error as *Acacia binervosa.* It is not at all likely that the specimen came from eastern Australia. It was collected by Baudin's expedition which visited both the east and west coasts of Australia. Considering the difficulties encountered by the expedition it is not surprising that that specimens were wrongly labelled. At the British Museum (Natural History) there is a specimen with the label "Nouv. Hollande. Côte occidentale, ile des amiraus", on which the name Leschenault has been added in pencil. One or both of these specimens could be isotypes. Labillardiere never visited the north-western coast.

The holotype has glabrous wrinkled phyllodes 30–42 mm long, 7–11 mm broad with two longitudinal nerves. It has 20–flowered heads in glabrous axillary 3–branched racemes, the axis 22 mm and the branches 12 mm long. The axis of the inflorescence is produced into a leafy shoot.

Selection of a lectotype of *A. elliptica* presented some difficulty. Several twigs are mounted on one sheet segregated as a type in herb. Kew. There is one label: "Bay of Rest, Exmouth Gulf, and Dampiers Archipelago, Feb $\frac{158}{1818}$, Dirk Hartog's Island, Jan $\frac{330''}{1822}$. Two twigs in the lower half of the sheet have broad binerved phyllodes and lack flowers or fruits. One of them has a "slip-on" label indicating that it was from Dirk Hartog's Island. It is coarser than other specimens of *A. bivenosa* I have seen and it is referred with some doubt to *A. xanthina.* Another twig bears a small label showing that it came from Dampiers Archipelago. It is presumed that one or both of the remaining twigs came from the Bay of Rest and constitutes the lectotype. Despite the indefiniteness of the lectotypification the application of the name *A. elliptica* is clear.

The holotype of *A. bivenosa* var. *borealis* has 2– or sometimes 3–nerved phyllodes 3·5–4·5cm long, 11–17 mm wide and the heads were apparently on axillary peduncles. It bears fruit not flowers. The specimen may have come from a young plant as one phyllode has a pair of pinnae at the top. *Lazarides* 6549 from Cable Beach, Broome is a good match for Hochreutiner's specimen.

Acacia bivenosa subsp. **wayi** (Maiden) Pedley, comb. et. stat. nov. Based on *A. salicina* Lindl. var *wayi* Maiden, Trans. Roy. Soc. Sth Aust. 32:277 (1908) ("Wayae"). **Syntype:** Marion Bay, Sep 1907, *Rogers* (K, iso) *A. cupularis* Domin, Mem. Soc. Sci. Boheme 1921-2. 2:45 (1923). **Type:** Bridgetown to Kajonup and Slab Hut Gully, in 1910, *Dorrien-Smith* (K, holo).

A. pallidiramosa Maiden & Blakley, J. Roy. Soc. W. Aust. 13:12 (1927) **Type:** No locality, date or collector (K, iso).

Phyllodes usually 1–nerved, (2·5–)3·5–10 cm long, 3–8·5 mm wide, usually more than 3·5 times as long as wide. Heads in axillary racemes, the branches usually less than 12 mm long.

Bentham (1864) regarded *A. ligulata* as being conspecific with *A. salicina* Lindl. Black (1920) recognised that two species had been included under the name *A. salicina, A. salicina* sens. strict. and what he considered to be *A. ligulata.* Black's application of the name *A. ligulata* has generally been followed since but, as noted above, examination of type material indicates that Black's application of the name is not correct and that *A. ligulata* is probably conspecific with *A. rostellifera.*

Maiden had already recognised the heterogeneity of *A. salicina* and he described *A. salicina* var. *wayae.* Maiden named the plant in honour of Sir Samuel Way, and the feminine form "wayae" is corrected here to "wayi". The single isosyntype I have seen has narrow elongated phyllodes and is representative of the plant usually known as *A. ligulata* in the south-eastern part of its range.

The holotype of *A. cupularis* also has narrow phyllodes and the inflorescence is reduced to a single head, though there are indications that it is the remnant of a reduced raceme. Other specimens from south-western Western Australia have 2–3 branched racemes as well as single heads.

A. pallidiramosa is referred to *A. bivenosa* subsp. *wayi* with some doubt. The isotype examined consists of two sterile twigs and a packet of seeds from which the plant which bore the twigs was grown. There is a small label on which is written "Mohrunga Cannsigon". I do not know the significance of the words. The specimen is similar to some of *A. bivenosa* subsp. *wayi* and *A. pallidiramosa* should be referred to this taxon.

2. Acacia mimula Pedley, nom. nov. Based on *Acacia propinqua* Pedley, Contrib. Qd Herb. 15:4 (1974), *nom. illeg. non* A. Richard (1846).

The name *Acacia propinqua* Pedley is illegitimate, being a later homonym of *A. propinqua* A. Richard. It is regretted that the earlier name was overlooked previously.

3. A. dissoneura F. Muell., South Sci. Record (July 1882). **Syntypes:** Port Darwin, *Schultz* 336 (MEL); Liverpool River, *Gulliver* (MEL).

Mr. B. R. Maslin (*in litt.*) suggested after examining type material that *A. dissoneura* should be referred to *A. dineura* F. Muell. Since then I have also seen type material and agree with his suggestion.

PROSOPIS L.

The identification of naturalized plants is often difficult mainly because one is usually not acquainted with the plants in their native country and adequate herbarium material is rarely available for comparison. *Prosopis* is a particularly difficult genus to deal with as the taxa introduced are believed to come from both North and South America and there is no modern treatment of the genus which includes species from both continents.

I have consulted Benson (1941), Graham (1960) and Johnston (1962) (for the North American species), Burkart (1940) (the South American species) and Rowell (1969). Material at the Herbarium, Royal Botanic Gardens, Kew (K) was examined. Burkart determined some South American material but inexplicably neglected some sheets, and no one has critically examined all the American material.

From the literature it is evident that there is considerable range of variation within species and intergrading of species. *P. laevigata, P. glandulosa, P. articulata* and *P. velutina* could well be treated as subspecies of *P. juliflora,* though this does not solve the problem of determination. It merely moves it a lower level in the classification. Benson and Johnston differ somewhat in their treatment of the same taxa. Benson recognized *P. juliflora* var. *glandulosa, P. juliflora* var. *torreyana* and *P. juliflora* var. *velutina* as occurring in the United States, while Johnston excluded *P. juliflora* but treated the same taxa as Benson as *P. glandulosa* var. *glandulosa, P. glandulosa* var. *torreyana* and *P. velutina* respectively. Johnston believed that the "morphic intermediacy of some individuals" was the result of hybridization among formerly more discrete taxa, mainly due to the expansion of the ranges of the taxa since the advent of domesticated grazing animals. He wrote of "the blurring of a formerly more precise geographic distribution pattern".

If several introductions of *Prosopis* have been made to Australia it is possible that some plants intermediate between described taxa (that is, plants "atypical" of any described taxon) would have been introduced. Assigning naturalized plants to described taxa without any knowledge of these taxa in their native countries is therefore difficult.

In the taxonomic treatment of the North American species workers have emphasised foliage characters, though mature pods may also be useful. Pods swell considerably during development and, not knowing the exact stage of the development of the fruits on specimens, I have been cautious in applying characters of the pod. On the whole the collections in Australia herbaria are poor. Most are either in flower or fruit, but few collectors noted anything of the plant and most specimens have been poorly preserved.

Some material from BRI was determined by Dr. H. S. Irwin of the New York Botanical Gardens in 1962. He stated (*in litt.*) that he relied heavily on Johnston's paper though there appear to be some inconsistencies in his determinations.

Key to taxa of *Prosopis* naturalized in Australia.

Leaflets more than 5 times as long as broad, or more than 20 mm long, widely spaced on the single pair of pinnae, the intervals about as wide as the leaflets themselves or wider 1. *P. glandulosa* var. *glandulosa*

Leaflets 2–5 times as long as broad, up to 12 mm long, not widely spaced on the rhachis

- Pinnae 1 pair, rarely 2 (always predominantly 1 on all specimens examined); leaflets 12–18 pairs (25 on one specimen); raceme to 6 cm long, shorter than leaves 2. *P. juliflora*
- Pinnae 2–3 pairs, occasionally 5, rarely 1; leaflets 10–15 pairs, rarely 18. Spike 10–12 cm long, longer than the leaves.
  - Pinnae 2 pairs; leaflets 12–15 (–18) pair, 7–12 mm long, glabrous except for long hairs on margins or with short hairs on upper surface; pedicels 0·5 mm long; calyx 1·1–1·2 mm long, corolla 3–3·8 mm long 3. *P. juliflora* × *P. velutina*
  - Pinnae 2–5 pairs (rarely 1); leaflets 10–15 pairs, 4–9 mm long, with scattered long hairs or moderately pubescent on both surfaces; pedicels often 0·2–0·3 mm long, sometimes 0·5 mm; flowers smaller—calyx 0·6–0·9 mm long, corolla to 3 mm long 4. *P. limensis*

1. **P. glandulosa** Torr.

Western Australia: Carnarvon, Jul 1953, *Coleman* 169 (PERTH). **Queensland.** PORT CURTIS DISTRICT: Bushley (near Rockhampton), Dec 1953, *Taylor* (BRI); Gladstone, Oct 1957, *Taylor* (BRI). BURNETT DISTRICT: Gayndah, Nov 1952, *Crocker* (BRI). DARLING DOWNS DISTRICT: Yandilla, Mar 1955, *Rea* (BRI); Brookstead, Nov 1956, *Offner* (BRI); Millmerran, May 1960, *Winston* (BRI); May 1959, *Taylor* (BRI); Pittsworth, Apr 1959, *Pittsworth Shire Council*. **New South Wales:** Barham, April 1969, *McGowan* (NSW).

This is *Prosopis glandulosa* var. *glandulosa*. There is one specimen of *P. glandulosa* var. *torreyana* (L. Benson) M. C. Johnston, Port Augusta Sports Ground, Jun 1960, *Symon* 486 (ADW), which, judging from the locality and the absence of any later specimens or collectors' notes, is probably not naturalized.

2. Prosopis juliflora (Sw.) DC.

A shrub, usually spiny; branchlets with scattered long hairs or moderately densely pubescent, glabrescent. Pinnae 1 or occasionally 2 pairs, petiole 0·5–3·5 cm long, it and rachis, glabrous, with scattered long hairs or moderately densely pubescent; leaflets 12–18 pairs (25 on one specimen); 5–12 mm long, 1·5–2·5 mm broad, 2·5–5 times as long as broad; indumentum varying from glabrous on upper surface with a few hairs on margins and midribs beneath to subglabrous above with moderately dense long hairs on lower surface, especially prominent on margins. Racemes *ca* 6 cm long; pedicels 0·4–0·6 mm long, sometimes with long hairs; calyx 0·8–1 mm long sometimes with long hairs outside; corolla 2·5–2·8 mm long; stamens 4–4·5 mm long. Pod flat when immature, somewhat contracted between seeds, up to 15 cm long, 1 cm broad when mature, as thick as broad, somewhat moniliform.

New South Wales: Rosewood H.S., 95 km NW of Ivanhoe, Jun 1975, *Pickard* 2577 (NSW); Broken Hill, Jun 1969, *Symon* 6736 & 6748 (ADW, NSW), Jul 1961, *Green* (NSW); Broken Hill South, May 1969, *Garrick* (ADW—2 specimens); towards Broken Hill, Sep 1962, *O'Neill* (ADW), 10·5 miles from Silverton on Silverton-Broken Hill road, May 1969, *Garrick* 2 (ADW); 4–5 miles from Broken Hill on Cockburn side, May 1969, *Garrick* 1 (ADW); ± 17 miles E of Cockburn, May 1969, *Garrick* 3 (ADW); 5 miles E of Cockburn, Jun 1963, Larwood (AD); Cockburn, Jun 1969, *Symon* 6730 & 6749 (ADW); Urana, Dec 1959, *Shire Clerk* (NSW).

Duplicates of two specimens from Broken Hill were identified by Burkart as *Prosopis juliflora,* probably of Caribbean origin. The specimens from the Cockburn-Broken Hill area are on the whole less pubescent than those from Urana.

Burkart's identification of Broken Hill material is in line with Johnston's treatment of *P. juliflora*. The more pubescent material possibly indicates some intergrading with *P. velutina*. The ranges of the two do not meet in North America, but there is a specimen of *P. velutina* from what appears to be a cultivated tree near Menindee (Old Henley Station garden. Dec 1949, *Henderson* 478 (NSW)), so that it is possible that hybridization could have occurred in cultivation.

3. P. juliflora (Sw.) DC. × **P. velutina** Woot.

Shrub (?) with spines up to 1·5 cm long or none; branchlets glabrous or with scattered long hairs. Pinnae 2 pairs; petiole 0·5–3 cm long, it and rachis glabrous or with moderately dense long hairs; leaflets 12–15, occasionally, 18 pairs, 7–12(–14) mm long, 2·5–3·5(–4·5) mm broad, 2·5–5 times as long as broad, glabrous except for long hairs on margins or with short hairs on upper surface. Raceme up to 11 cm long; pedicel 0·5 mm long; calyx 1·1–1·2 mm long, sometimes with a few long hairs outside; corolla 3–3·7 mm long, rather more densely pubescent inside than in other forms; stamens 4·5–5·5 mm long. Pod thick up to 17 cm long and 1 cm broad.

Western Australia: Carnarvon, Jul 1953, *Coleman* 170 (PERTH), Aug 1956, *Meadly* (PERTH, BRI); Gasgoyne River flats, Carnarvon, May 1962, *Aplin* 1552 (PERTH); 2 miles S of Carnarvon, Oct 1958, *Menzies,* Nov 1964, *Donovan* (PERTH).

Irwin determined *Meadly* s.n. (BRI) as "*P. velutina* Woot. > *P. articulata* S. Wats.". These two species intergrade (Johnston p. 86) but it seems that whenever a plant has some indumentum on the foliage *P. velutina* is assumed to be one of its parents. It keys to *P. velutina* in both Benson and Johnston but is not like undoubted *P. velutina* from Arizona (*Brass* 14342, BRI).

4. Prosopis limensis Benth.

Tree with spines up to 2 cm long, sometimes absent; branchlets with scattered long hairs becoming glabrous. Pinnae 2–3 pairs (up to 5 pairs in specimens from Northern Territory and rarely 1 in specimens from Geraldton); petiole 1–2 cm long; it and rachis with scattered long hairs (*ca* 0·3 mm long); leaflets 10–15 pairs, 4–9 mm long, 1·5–3 mm broad, usually *ca* 3 times as long as broad but ranging from 2–5 mm, with scattered long hairs or (in Geraldton material) moderately pubescent on both surfaces. Raceme 10–12 cm long; pedicel 0·2–0·3 mm long (0·5, in Geraldton material); calyx 0·6–0·9 mm long; corolla 2·5–3 mm long. Pod thick, curved, up to 15 cm long and 1 cm broad, broader in Geraldton specimens.

Western Australia: Geraldton, Jan 1955, *Marr* (PERTH), Feb 1963, *Saffrey* 46 (AD, PERTH); De Grey Station homestead, Jul 1936, *Anderson* (PERTH). **Northern Territory:** Elsey, *sine coll.* NT 11867 (NT); Elliott, May 1965, *Newton* NT 11787 (NT); Ranken, Alexandria, Nov 1961, *Paine* NT 8521 (NT); Coniston, Feb 1955, *Chippendale* NT 190 (NT). **Queensland:** BURKE DISTRICT: 34 miles S of Burketown, *Tracey* (BRI); Cloncurry, Aug 1958, *Sillar* (BRI), Oct 1958, *Sullivan* (BRI); Hughenden, Jul 1963, *Everist* 7288 & 7289 (BRI); Winton, Nov 1954, *Winton Shire Council* 7 (BRI, CANB). COOK DISTRICT: Karumba, Aug 1973, *J. S. Johnson* NSW 107431.

The Geraldton specimens are referred here with some doubt. As well as the differences noted in the description the leaflets have rather prominent secondary veins.

Irwin identified this taxon as both *Prosopis chilensis* (Mol.) Stuntz (*Winton Shire Council* 7 and *Sillar*) and *P. limensis* Benth. (Sullivan). He also identified specimens from a tree cultivated in the Brisbane Botanic Gardens (*White* 2390 & 8642, BRI, GH) as *P. chilensis,* both of which were cited by Johnston under *P. pallida* (Willd.) HBK.

P. pallida has been something of a puzzle. Burkart did not mention it and it is evidently close to *P. limensis.* I have followed Bentham (1842) in treating it as being glabrous.

5. Prosopis flexuosa DC.

Queensland: WARREGO DISTRICT: "Comongin", about 10 miles NE of Quilpie, Nov 1957, *Everist* 5902 (BRI).

The species is not included in the key as it is known from only one locality in Queensland. It forms large clumps in the vicinity of "Comongin" homestead but has evidently not spread though there are evidently large areas of country suitable for its growth.

It differs from *P. juliflora* in having narrower pods and more pubescent branches.

CAESALPINIOIDEAE

LYSIPHYLLUM (BENTH.) DE WIT

De Wit (1956) in his treatment of the tribe Bauhinieae in Malesia recognized seven genera, one of them *Lysiphyllum* which had been originally described by Bentham as a section of *Bauhinia.* The rather narrow circumscription of genera was rejected by Hutchinson (1964) who referred all genera recognized by de Wit to *Bauhinia.* Brenan (1967) and Schmitz (1972) however followed de Wit's treatment of *Bauhinia* sens. lat.

The 5 species of *Lysiphyllum* that occur in Australia are distinguished as follows:

Receptacle (disk-bearing base of calyx) cylindrical; sepals 4–10 mm long; leaflets 2·5–4·5 cm long, 16–32 mm wide, 1·3–1·8 times as long as wide, ± oblong, broadest at the base, tapering gradually to the rather broad, obtuse apex.

Scandent shrub; tendrils circinnate but caducous; calyx lobes 4–5 mm long; pods up to *ca* 3 cm wide *L. binatum*

Trees without tendrils; calyx 7–10 mm long; pods 3–4 cm wide *L. hookeri*

Receptacle turbinate or campanulate; sepals 2–5 mm long; leaflets 7–22 mm wide, 1·2–3·5 times as long as wide, either broadest below the middle and tapering gradually to rather narrow acute apex or broadest about the middle and tapering equally to base and apex.

Leaflets broadest about the middle, equally tapering to each end, 1·2–1·7 times as long as wide; calyx lobes with marginal– and sometimes mid-nerve, buds therefore ribbed *L. cunninghamii*

Leaflets broadest below the middle and tapering to narrow apex, 1·5–3·5 times as long as wide; calyx lobes and buds not ribbed.

Indumentum of outside of calyx red-brown; pod 2·5–4 cm wide *L. carronii*

Indumentum of outside of calyx yellowish; pod 1–2·5 cm wide *L. gilvum*

The transfer of *L. binatum* and *L. cunninghamii* from *Bauhinia* to *Lysiphyllum* was made by de Wit. The other new names required are:

Lysiphyllum hookeri (F. Muell.) Pedley, comb. nov. Based on *Bauhinia hookeri* F. Muell., Trans. Phil. Inst. Vict. 3:51 (1858). **Type:** Gilbert River, *Mueller* (MEL)

L. hookeri (F. Muell.) de Wit ex Schmitz, Bull. Jard. Bot. Nat. Belg. 43:407 (1973), *nom. inval.*

Schmitz attributed the name *L. hookeri* to de Wit, but de Wit did not make the combination, nor can it be attributed to Schmitz as he cited no basionym.

Lysiphyllum carronii (F. Muell.) Pedley, comb. nov. Based on *Bauhinia carronii* F. Muell., Trans. Phil. Inst. Vict. 3:49 (1858). **Type:** Burdekin River, *Mueller* (MEL, Lectotype, designated here)

Lysiphyllum gilvum (F. M. Bailey) Pedley, stat. nov. Based on *Bauhinia cunninghamii* Benth. forma *gilva* F. M. Bailey, Qd Ag. J. 25:287 (1910) **Type:** Georgina River, *Bick* (BRI, holo)

B. cunninghamii Benth. forma *rosea* F. M. Bailey, *loc. cit.* **Type:** Georgina River, *Bick* (BRI, holo)

B. leichhardtii F. Muell. var. *cinarescens* F. Muell. in Winnecke, Explor. Report (1884). **Type:** Central Australia, *Winnecke* (MEL, holo)

Northern Territory: 8 miles [13 km] NE of Abadaba Bore, Lake Nash, Oct 1955, *Chippendale* NT 1813. **Queensland:** Burke District: Nonda, between Hughenden and Cloncurry, Feb 1931, *Hubbard & Winders* 7293; Flinders River, Aug 1916, *White*. Gregory North District: Georgina River, 8 miles [13 km] NW of "Headingly", Sep 1954, *Chippendale* NT 254; Georgina River, Urandangie, Sep 1954, *Chippendale* NT 253; Glenormiston, Jan 1935, *Boyle*. Gregory South District: 38 miles [61 km] W of Windorah, Sep 1966, *Boyland* 151; [E of Windorah] 25°23′S 143°41′E, Jun 1969, *Trapnell* E50; "Morney Plains", *ca* 80 miles [130 km] W of Windorah, Sep 1949, *Everist* 4111. Mitchell District: 56 miles [90 km] S of Prairie, 21°36′S, Jun 1969, *Trapnell* E73; between Emerald & Longreach, Oct 1913, *Jarvis*. Warrego District: Thargomindah (cultivated), Nov 1954, *Smith* 6056; Charleville, Oct 1945, *Clemens*. **New South Wales:** Warroo via Bourke, Nov 1936, *Morris*.

CAESALPINIA L.

The uniting of *Mezoneuron* with *Caesalpinia* by Hattink (1974) appears to be justified. He transferred only two of the three Australian species of *Mezoneuron* to *Caesalpinia* and the name of one of these is illegitimate in *Caesalpinia*.

The following new names are necessary:

Caesalpinia subtropica Pedley, nom. et comb. nov. Based on *Mesoneuron brachycarpum* Benth., Fl. Aust. 2:278 (1864)

Caesalpinia brachycarpa (Benth.) Hattink, Reinwardtia 9:53 (1974), *nom. illeg.* non *C. brachycarpa* (A. Gray) Fisher (1893). **Type:** New South Wales: Richmond River, *Moore* (K, lecto, selected by Hattink, not seen)

Caesalpinia robusta (C. T. White) Pedley, comb. nov. Based on *Mezoneurum robustum* C. T. White, Contrib. Arn. Arb. 4:43 (1933). **Type:** Cook District: Boonjie, Sep 1929, *Kajewski* 1206 (BRI, iso)

Herbarium material of the species is poor, but it can be distinguished from *C. scortechinii* and *C. subtropica* by its larger leaflets and extremely prickly stem.

PAPILIONOIDEAE*

Daviesia Sm.

Though *Daviesis corymbosa* Sm. has been recorded from Queensland, it is apparently restricted to the central coast of New South Wales. Most of the specimens previously identified as *D. corymbosa* from Queensland should be referred to *D. mimosoides* R.Br. which is widely spread in south-eastern Queensland. In the south-eastern part of the Darling Downs District near Stanthorpe, *D. latifolia* R.Br. may sometimes be confused with *D. mimosoides* but is distinguished by its broader leaves with prominent veins and racemes with pedicels almost to the base of the axis. Intermediates between the two species do occur rarely. *D. arborea* W. Hill is also similar to *D. mimosoides* but is usually a larger plant, developing into a small tree, with less coriaceous leaves gradually attenuate to the acute apex and flowers usually with a purplish keel.

Two species *D. discolor* and *D. flava* described here as new have previously been referred to either *D. mimosoides* or *D. arborea*. They may be distinguished from *D. mimosoides* by the following key:

- Leaves 2·5–9·5 cm long, less than 6 times as long as wide
  - Leaves 1·5–3·3 cm wide with conspicuous anastomosing veins; inflorescence a raceme — *D. latifolia*
  - Leaves 1–1·4 cm wide, thinner in texture with less conspicuous venation; inflorescence a corymbose raceme — *D. mimosoides*
- Leaves 5–15 cm long, more than 8 times as long as wide
  - Leaves discolorous; axis of raceme up to 1 cm long; shrub — *D. discolor*
  - Leaves not discolorous; axis of raceme usually 2 cm or more, rarely 1 cm long; small trees or shrubs
    - Calyx ± truncate or emarginae; leaves thin in texture, acute, attenuate to the apex; small trees — *D. arborea*
    - Calyx lobed; leaves not thin in texture, obtuse, mucronulate, not gradually tapered to apex — *D. flava*

Daviesia discolor Pedley, species nova affinis *D. arboreae* W. Hill foliis venatione promientiore leviter discoloribus, racemis brevioribus et habito differt. Typus: *Henderson et al.* H1026 (BRI, holotypus; A., CANB, K, L, NSW, PR, isotypi)

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* For note on name of subfamily see Brenan (1967).

Frutex usque ad 1 m altus; ramuli angulares glabri; stipulae obscurae. Folia plana vel margine leviter incurvata, acuta aliquantum discoloria, reticulatim nervata aliquantum prominente, subsessilia, 7–15 cm longa, (4–)6–8 mm lata, 10–20(–33)–plo longiora quam lata. Racemi singulare vel binatim in superis axillis dispositi; axis 5–10 mm longus; bractea minus quam 1 mm longa praeditus; carina aliquantum brevior quam vexillum et alae. Legumen immaturum.

Shrub to 1 m tall; branchlets angular glabrous; stipules inconspicuous. Leaves flat or the margin slightly incurved, acute, slightly discolorous with somewhat prominent reticulate nerves, subsessile, 7–15 cm long, (4–)6–8 mm wide, 10–20(–33) times longer than wide. Racemes arranged singly or in pairs in the upper axils; axis 5–10 mm long; bracts less than 1 mm long; calyx 2·7–3 mm long with fimbriate lobes 0·7–0·8 mm long; keel a little shorter than the standard and wings. Pod immature.

LEICHHARDT DISTRICT: Blackdown Tableland, *ca* 23°50′S 149°E, Sep 1937, *Simmons* (sterile); Aug 1964, *Gittins* 926; Sep 1971, *Henderson, Durrington & Sharpe* H1026; Apr 1971, *Henderson, Andrews & Sharpe* 860 (sterile).

Daviesia flava Pedley, species nova; a *D. mimosoidis* R.Br. foliis elongatioribus, a *D. arboreae* W. Hill foliis apicem versus minus attenuatis, pedicellisque plerumque longioribus calycis saepe brevioribus, ab amobus lobis superis claycis magis divisis, carina alas et vexillum aequanti differt. Typus: *Webb & Tracey* 5929 (BRI, holotypus; CANB, K, isotypi).

Frutex usque 1·5 m altus; ramuli angulares glabri; stipulae 0·6–1 mm longae. Folia plana lineares vel anguste oblonga, obtusa mucronulata, 5–12 cm longa, 3–13 mm lata, 8–20–plo longiora quam lata; petiolus circa 1 mm longus. Racemi glabri 1–3, in axillis superis dispositi: axis (1–)2–4·5 cm longus; bractea ca 1·5 mm longa; pedicelli plerumque in parte supera axis portati, 6–12 mm longi, versus apicem axis breviores. Flores flavi 5–6 mm longi, calyx 2·5–3·5 mm longi lobis fimbriatis 0·7–0·8 mm longis superis circa 2/3 unitis praeditus; carina petala cetera ± aequans. Legumen in parte latissima 1 cm latum.

Shrub to 1·5 m tall; branchlets angular, glabrous; stipules 0·6–1 mm long. Leaves flat, linear or narrowly oblong, obtuse mucronulate, 5–12 cm long, 3–13 mm wide, 8–20 times as long as broad, very obliquely reticulately penninerved, prominently so when broad; petiole *ca* 1 mm long. Racemes 1–3, in the upper axils, glabrous: axis (1–)2–4·5 cm long; bracts *ca* 1·5 mm long; pedicels mostly in upper half of axis, 6–12 mm long shorter towards top of axis. Flowers yellow 5–6 mm long; calyx 2·5–3·5 mm long with fimbriate lobes 0·7–0·8 mm long the upper ones about 2/3 united; keel about as long as other petals. Pod *ca* 1 cm wide at broadest part.

COOK DISTRICT: Great Dividing Range on Cooktown road, in 1970, *Wyatt;* Clohesy River area, Feb 1963, *Wyatt* 23; Koah, Clohesy River, Nov 1967, *Brass* 33735; Kuranda-Mareeba road, Feb 1962, *Webb & Tracey* 5929. NORTH KENNEDY: Conjuboy Road, Oct 1972, *Althofer* 328; 4 miles SW of Mt Garnet, Jun 1971, *Hyland* 502.

MACROPTILIUM URB.

Macroptilium bracteatum (Nees & Mart.) Marechal & Baudet.

Previously (Pedley 1973) the combination *Macroptilium bracteatum* was attributed to Urban. At that time the combination had in fact not been made. Since then *Phaseolus bracteatus* has been transferred to *Macroptilium* by Marechal and Baudet (1974). The correct citation of the name is therefore as given above.

MIRBELIA SM.

Key to *Mirbelia* in Queensland

Upper surface of leaf conspicuously reticulate; ovules 2. *M. rubiifolia* (Andr.) G. Don.

Upper surface of leaf smooth or occasionally tuberculate, not conspicuously reticulate; ovules either 2–4 or 10–12.

Flowers in racemes, terminal or in upper axils, sometimes much reduced; ovules 2 *M. confertiflora* Pedley

Flowers single in the axils

Calyx lobes as long as the tube; ovules 10–12 *M. speciosa* DC.

Leaves 1–2 cm long (rarely longer); bracteoles shorter than calyx tube *M. speciosa* subsp. *speciosa*

Leaves 2–3 cm or more long (those subtending flowers sometimes shorter); bracteoles longer than calyx tube *M. speciosa* subsp. *ringrosei* (F. M. Bailey) Pedley

Calyx lobes shorter than the tube; ovules 2–4

Leaves with a straight pungent point; ovary pubescent; ovules 4 *M. pungens* A. Cunn. ex G. Don

Leaves with a hooked point; ovary glabrous ovules 2 *M. aotoides* F. Muell.

Mirbelia confertiflora Pedley, sp. nov.

Misapplied name: *Mirbelia aotoides* auct. non F. Muell; Thompson, Contrib. N.S.W. Nat. Herb. Fl. Ser. 101:19 (1961).

Frutex usque ad 2 m altus; ramuli pilis sparsis appressis sericeis vestiti; stipulae nullae. Folia alternata vel irregulatim verticellata, linearia, acuta, mucronata, revoluta, supra glabra vel minute tuberculata, infra glabra vel pilis paucis appressis secus costam vestita, 1·5–2·5 cm longa, usque 1·5 mm lata; petiolus 1·5 mm longus. Flores in racemis (saepe valde contractis) terminalibus vel axillis superis dispositi; bracteae anguste lanceolatae 3·5 mm longae marginibus leviter incurvis, infra pilis longis adscendentibus albis fuscisve vestitae; calyx 6–7 mm longus pilis densis albis adscentibus vestitus, lobis 3·5–4 mm longis fere aequilongis, superis usque ad 1 mm ab apice connatis; petala unguiculata aurantiacea; vexillum leviter retusum, 4–5·5 mm longum, 10 mm latum ungue 2·5 mm longo, circa 12 mm lato; alae basi auriculatae, oblongae obtusae, 5·6 mm longae, 2·5 mm latae leviter gibbosae versus basem, ungue 2·5 mm longo et 1·2 mm lato; carina 3·5–4·5 mm longa, 2–3 mm lata, in latere prope basem gibbosa. Staminea filamenta 4–5 mm longa, versus apicem attenuata. Ovarium glabrum circa 2·5 mm longum; stylus uncinatus aliquatum crassus; ovula 2. Legumina dehiscentia ca 4·5 mm longa; endocarpium post maturiatem ab exocarpio secedens. Typus: *Pedley* 1539 (BRI, holo).

Shrub to 2 m tall; branchlets with sparse appressed silky hairs; stipules none. Leaves alternate or irregularly whorled, linear, acute mucronate, revolute, glabrous or minutely tuberculate above, glabrous or with a few appressed hairs along the midrib below, 1·5–2·5 cm long, up to 1·5 mm wide; petiole *ca* 1·5 mm long. Flowers in racemes (often much contracted) terminal or in upper axils; bracts narrow lanceolate 3·5 mm long with slightly incurved margins with dense long white or brown ascending hairs beneath; bracteoles on the pedicel, 3·8 mm long, lanceolate, with dense brown hairs; calyx 6–7 mm long with dense white ascending hairs, the lobes 3·5–4 mm long, nearly equal in length, the upper united to *ca* 1 mm of the apex; petals unguiculate, orange; vexillum slightly retuse, 4–5·5 mm long, 10 mm wide with a claw 2·5 mm long, *ca* 1·2 mm wide, alae auriculate at the base, oblong obtuse, 5·6 mm long, 2·5 mm wide, slightly gibbose towards the base, with a claw 2·5 mm long and 1·2 mm wide, keel 3·5–4·5 mm long, 2–3 mm wide, gibbose on the side near the base. Staminal filaments 4–5 mm long, attenuate towards the apex. Ovary glabrous, *ca* 2·5 mm long; style hooked, rather thick; ovules two. Pods dehiscent *ca* 4·5 mm long; endocarp separating from epicarp after maturity.

QUEENSLAND: Jolly's Falls *ca* 8 km N of Stanthorpe, Oct 1956, *Shea* S42; Oct 1963, *Pedley* 1539; The Summit, Sep 1958, *Michener;* Girraween Nat. Park, near Wyberba, Nov 1971, *Ryan* 43. NEW SOUTH WALES: Boonoo Boonoo, Feb 1905, *Boorman;* Gibraltar Range; May 1961, *Constable* NSW 56665.

Mueller based his description of *M. aotoides* on a single plant collected from the Burnett Ranges but later he referred another specimen (Mt Mitchell, N.S.W., *Beckler*—duplicate at Kew) to it. In this he was followed by Bentham, and the name *M. aotoides* came into general use for the Mt Mitchell plant which is in fact a distinct species, *M. confertiflora.*

M. aotoides is widely spread in Queensland but is nowhere common. It is so like a species of *Aotus* in all characters except the longitudinal dissepiment in the ovary and seed that one might speculate on the desirability of uniting the genera *Aotus* and *Mirbelia.*

Mirbelia aotoides F. Muell., Trans. Phil. Inst. Vict. 3:53 (1859), Fragm. 4:12 (1863); Benth., Fl. Aust. 2:35 (1864). **Type:** Burnett Ranges, *Mueller* (MEL, holo; BRI, photo)

NORTH KENNEDY DISTRICT: Paluma Range, 19°S 145°5′E, Sep 1963, *Vessey.* MITCHELL DISTRICT: between Torrens Creek and Pentland, Oct 1935, *Priest* (North Queensland Naturalists' Club 824). LEICHHARDT DISTRICT: Mt Playfair Station, in 1956, *Biddulph* 38; Glinghinda, *ca* 60 km N of Taroom, Oct 1963, *Speck* 1873; Carnarvon Range, Oct 1933, *White* 9464. DARLING DOWNS DISTRICT: Miles, Jun 1946, *White* Herb. Aust. 1159, Sep 1961, *Pedley* 887; Chinchilla area, Sep 1954, *Emerson.* BURNETT DISTRICT: Hungry Hills between Eidsvold and Mt Perry, Jul 1956, *Coaldrake.*

Mirbelia speciosa Sieb. ex DC. subsp. **ringrosei** (F. M. Bailey) Pedley, comb. et stat. nov. Based on *M. ringrosei* F. M. Bailey, Qd Ag. J. 16:189 (1905). **Type:** Herberton, Aug 1905, *Ringrose* (BRI, holo)

COOK DISTRICT: Mt Windsor, Mar 1941, *Carr.* LEICHHARDT DISTRICT: Blackdown Tableland, *ca* 23°50′S 149°E, Apr 1971, *Henderson, Andrews & Sharpe* H609 & H744, Sep 1971, *Henderson, Durrington & Sharpe* H1207; Carnarvon Ranges, Jul 1937, *Young.* DARLING DOWNS DISTRICT: Fairyland S.F.R. 42, Jul 1948, *Anderson.* MORETON DISTRICT: Crows Nest, Oct 1921, *White,* Sep 1922, *Kenny,* May & Oct 1924, *Brass* 18; Helidon-Ravensbourne road, Sep 1961, *Hockings & Cockburn;* 6 miles [10 km] N of Helidon, Aug 1963, *Pedley* 1380, Sep 1963, *Pedley* 1400.

STYLOSANTHES SWARTZ

Following a revision of *Stylosanthes* by Mohlenbrock (1958) and a review of Malesian species by Nooteboom in van Meeuwen *et al* (1961) there has been some controversy about the identity of *S. sundaica* Taub. Mohlenbrock treated *S. sundaica* as a synonym of *S. humilis* HBK., Townsville stylo. Nooteboom not only treated the two as distinct, but placed them in different sections of the genus, *S. sundaica* in sect. Styosanthes and *S. humilis* in sect. Stylosanthes. Mohlenbrock (1963), without any discussion, accepted Nooteboom's interpretation of *S. sundaica.* More recently 't Mannetje (1968) received the problem and suggested that detailed taxonomic studies be carried out.

Through the courtesy of the Director of Herbarium Bogorense I examined Malesian material of *S. sundaica* and material of *S. humilis* from Australia and New Guinea in the Queensland Herbarium.

Plants from Malesia (excluding Papua) usually have two inner bracteoles, and in one case (*van Steenis* 7357) a rudimentary floral axis. In all other characters (vegetative, floral and fruiting) the Malesian and Australian plants are indistinguishable. In general appearance plants of *S. sundaica* grown in the open at Brisbane look very like the "Katherine" and "Pretty Beach" strains of *S. humilis* grown under controlled environmental conditions at Canberra (Downes *et al*, 1967). When grown in the open at Gayndah (latitude 25·5°) and Brisbane *S. sundaica,* or at least the strain grown, does not flower. This is not inconsistent with the behaviour of the late maturing types of Townsville stylo naturalized in Australia (Cameron, 1967).

I agree with Nooteboom's observations on *S. sundaica* and on the deficiencies of Mohlenbrock's (1958) paper, but I do not believe that the evidence presented justifies the recognition of *S. sundaica* as a distinct taxon. It is merely a variant of the extremely variable *S. humilis,* not worthy of even varietal rank. Mohlenbrock's description of *S. humilis,* however, should be amended to include plants which often have two bracteoles and rarely a caducous rudimentary floral axis. It may then be regarded as being somewhat transitional between the two sections, as Mohlenbrock has already treated *S. sericeiceps* S. F. Blake. The fact that the presence of a rudimentary floral axis and a second inner bracteole is used to distinguish the two sections of Stylosanthes does not give these characters any special properties and make them any less liable to variation at least within some species.

Stylosanthes humilis which is well adapted to dispersal by animal and man was probably introduced from eastern Brazil into Malesia in post-Columbian times, probably by Portuguese in the 16th century. Merrill (1954) discussed the significance of the Portugal-Brazil-Cape of Good Hope-East Indies trade route. *S. humilis* is an extremely plastic species, as is demonstrated by the behaviour of the plants naturalized in Queensland (Cameron, 1965) which probably have been derived from few introductions and the variant with the rudimentary floral axis and second bracteole could either have been the original strain introduction to Malesia or it could have arisen since.

TEPHROSIA PERS.

The genus *Tephrosia* in Australia is in need of revision. Some preliminary studies have been made and it is intended that eventually at least a review of the Australian species will be prepared. In the interim the following new combinations are made and species described:

Tephrosia spechtii Pedley, nom. et stat. nov. Based on *T. purpurea* (L.) Pers. var. *axillaris* Bak. f., J. Bot. 64:91 (1926). **Type:** Groote Eylandt, *Brown* '4115' (K, isosyn)

NORTHERN TERRITORY: Hemple Bay, Groote Eylandt, May 1948, *Specht* 373; Bickerton I., Jun 1948, *Specht* 620.

Tephrosia rufula Pedley, nom. et stat. nov. Based on *T. purpurea* (L.) Pers. var. *rufescens* Benth., Fl. Aust. 2:210 (1864). **Type:** Gorman Creek, Moreton Bay, *Stuart* (ex herb. Mueller) (K, lecto, designated here)

T. brachyodon Domin var. *rufescens* (Benth.) Domin, Biblio. Bot. 89:198 (1926). Based on *T. purpurea* var. *rufescens* Benth.

Queensland: Leichhardt District: Springsure, Oct 1933, *White* 9451; Isla Gorge, *ca* 28 km SW of Theodore, Aug 1973, *Sharpe & Hockings* 515. Burnett District: Dillarnel, Dec 1939, *Smith* 637; "Narayen", Feb 1967, *Tothill* N339; Crawford Hill, Nov 1947, *Michael* 3038. Moreton District: Petrie, Nov 1931, *Blake* 2893; Pine Mountain, 27°29'S 152° 44'E, Jul 1972, *Durringon & Thomas* 724; Goodna, Jun 1930, *White* 6770; Enoggera near Brisbane, Oct 1930, *White* 7342.

Tephrosia benthamii Pedley, nom. et. stat. nov. Based on *T. rosea* F. Muell. ex Benth. var. (?) *angustifolia* Benth., Fl. Aust. 2:2111 (1864). **Type:** between Darling and Cooper Creek, *Neilson* (K, holo)

Queensland: Gregory North District: "Coolane" *ca* 32 km W of Winton, Oct 1956, *Bisset*. Warrego District: "Curragh" near Cunnamulla, Jan 1931, *Hubbard & Winders* 6216; Charleville, Oct 1945, *Clemens*.

Tephrosia delestangii Pedley, species nova affinis *T. polyzygae* F. Muell. ex Benth. foliolis paucioribus latioribus, inflorescentiis densioribus et leguminibus angustioribus differt. Typus: *Latz* 1535 in NT 31511 (BRI, holotypus).

Suffrutex ramosissimus foliaceus griseus usque 0·5 m altus; ramuli indumento pilorum rectorum appressorum argenteorum usque 1 mm longorum obsiti; stipulae lineares persistentes 3–6 mm longae. Folio (9–)13–29–foliata; rhachis (25–)35–75 mm longa (petiolo 7–12 (–10) mm longo incluso), dense pubescens; foliola obovato-oblonga vel cuneata, obtusa, truncata vel leviter retusa, 8–16 mm longa, 3–6 mm lata, 2·3–2·8–plo longiora quam lata, foliolo terminali interdum 9 mm lata et 1·5–plo longioro quam lata, discoloria indumento pilorum brevium debillium erectorum sparsorum supra indumento pilorum longiorium appressorium argenteorum plerumque densorum infra obsita, 4–5 nervis lateralibus conspicuis, praecipue conspicius in pagina supero praedita. Flores in pares in pseudoracemis 4–7–nodis terminalibus vel in axillas superas dispositi; pedicelli 2–2·5 mm longi; calyx dense appresse pubescens tubo quam lobus inferus longiore, 1·5–2 mm longo, lobo supero (bifido ad circa medium) et laterale 1·5–1·8 mm longo, lobo infero 2–2·5 mm longo instructus. Corolla aurantiaca; vexillum tomentosum dorsale, 4 mm longum, 4–4·5 mm latum, ungue 1·2–1·5 mm longo; alae quam carina longiores 4 mm longae, 2 mm latae unguibus 1–2 mm longis; carina interdum leviter pubescens apicem versus circa 3 mm longa, 1·5–2 mm lata, ungue eum alarum aequanti; ovarium dense appresse pubescens, 8–10–ovalatum; stylus glaber planus. Legumen rectum vel apice interdum sursum, appresse pubescens, 35–40 mm longum; 3–3·5 mm latum. Semina brunnea subcylindrica 2–2·2 mm longa, 1·7–2 mm diam; arillus nullus.

Much-branched leafy grey subshrub to 0·5 m tall; branchlets with dense indumentum of straight silvery hairs to 1 mm long; stipules linear persistent 3–6 mm long. Leaves (9–)13–29–foliolate; rachis (25–)35–75 mm long (including petiole 7–12(–20) mm long), densely pubescent; leaflets obovate-oblong or cuneate, obtuse, truncate or slightly retuse, 8–16 mm long, 3–6 mm wide, 2·3–2·8 times as long as wide, the terminal leaflet sometimes 9 mm wide and 1·5 times as long as wide, discolorous, upper surface with indumentum of sparse weak short erect hairs, lower with indumentum of usually dense appressed longer silvery hairs, 4–5 lateral nerves conspicuous, especially on upper surface. Flowers in pairs in 4–7–noded terminal pseudoracemes 5–9 cm long or rarely in pairs in upper axils; pedicels 2–2·5 mm long; calyx densely appressed pubescent, the tube shorter than the lower lobe, 1·5–2 mm long, upper lobe (bifid to about the middle) and lateral lobes 1·5–1·8 mm long; lower lobe 2–2·5 mm long. Corolla orange; standard tomentose on the back, 4 mm long, 4·5–5 mm wide on claw 1·2–1·5 mm long; wings longer than the keel, 4 mm long, 2 mm wide, on claw 1–2 mm long; keel sometimes slightly pubescent near the apex, *ca* 3 mm long, 1·5–2 mm wide on claw as long as that of the wings; ovary densely appressed pubescent, 8–10 ovulate; style flat, glabrous. Pod straight or sometimes upturned at the apex, appressed pubescent, 35–40 mm long, 3–3·5 mm wide. Seeds brown, subcylindrical 2–2·2 mm long, 1·7–2 mm diam.; aril none.

Northern Territory: Stuart Highway, Daly Waters turn-off, Feb 1969, *Must* 432 (BRI); Daly Waters, Mar 1972, *Byrnes* 2501 (BRI); 50 miles [80 km] S of Borroloola road junction, McArthur River, *ca* 17°18′S, 135°37′E, Jun 1971, *Latz* 1535 (BRI). **Queensland:** BURKE DISTRICT: Adels Grove, 130 km NNE of Camooweal, Feb 1946, *de Lestang* (BRI).

T. delestangii has been collected in only three rather widely separated localities. It occurs on skeletal soils on hillsides.

Tephrosia virens Pedley, sp. nov. affinis *T. spechtii* Pedley et *T. macrocarpae* Benth. ab illa foliolis paucioribus grandioribus a hac foliolis saepe paucioribus infra pubescentibus sine mucrone nervis paucioribus lateralibus et inflorescentiis axillaribus differt. Typus: *Lavery* 19 (BRI, holotypus).

Frutex virella usque 2 m altus; ramuli angulares mox teretes sericei vel interdum glabrati; stipulae lineares 2·4 mm longae. Folia 3–vel minus plerumque 5–foliolata; axis sericeus, 6–18 (–28) mm longus (petiolo 5–13(–16) mm longo incluso) folioli anguste obovati vel obovati, obtusi vel aliquando retusi, 20–35 mm longi, 5–15 mm lati, 2–4·4–plo longiora quam latum, foliolo interdum grandiori, supra glabri vel indumento pilorum sparsorum brevium appressorum et infra pilorum brevium appressorum obsita; 4–8 nervi laterales conspicui; petiolulus 1·5–2·5 mm longus dense sericeus. Flores 1–7 in gricibus axillaribus apparenter sessilibus vel perspicue racemosis, axe post lapsum florium manifeste cicatricata, 1·4 mm longo. Corolla aurantiaca vel aurantiaco-ruber; vexillum dorsale tomentosum, 4·5–6 mm longum, 7–10 mm latum ungue 1·5–3 mm longo; alae carinam fere aequantes 4–6 mm longae, 2·5–4 mm latae ungue 2–2·5 mm longo; carina 4–5 mm longa, 2–3 mm lata ungue 2–3 mm longo. Calyx appresse pubescens; tubus 1·8–2 mm longus, lobus inferus ± subulatus, 2·5–4 mm longus, lobi laterali 2–2·5 mm longi et lobus superus 2–3 mm longus ad circa medium bifus. Ovarium sericeum, 8–9 ovulatum; stylus planus glaber. Legumen planum sursum apice sparse apprese pubescens 5–6 cm longum, 4–5 mm latum, 6–9– sperum. Semina lenticula circa 3–4 mm longa, 2–2·5 mm lata, sine arillo.

Greenish shrub to 2 m tall; branchlets angular becoming terete, sericeous or sometimes glabrate; stipules linear 2–4 mm long. Leaves 3– or less commonly 5–foliolate; axis sericeous, 6–18(–28) mm long (including petiole 5–12(–16) mm long), leaflets narrowly obovate or obovate, obtuse or occasionally retuse, 19–35 mm long, 5–15 mm wide, 2–4·4 times as long as wide, the terminal one sometimes larger, upper surface glabrous or with indumentum of sparse short appressed hairs, lower surface always with indumentum of sparse appressed hairs, 4–8 lateral veins conspicuous; periolule 1·5–2·5 mm long, densely sericeous, Flowers in groups of 1–7 in the axils apparently sessile or distinctly racemose the axis conspicuously scarred after flowers have fallen, 1–4 mm long. Corolla orange or orange-red; standard tomentose on the back, 4·5–6 mm long, 7–10 mm wide on claw 1·5–3 mm long; wings as long as, or slightly longer than, the keel, 3·4–6 mm long, 2·5–4 mm wide on claw 2–2·5 mm long; keel 4–5 mm long, 2–3 mm wide on claw 2–3 mm long. Calyx appressed pubescent; tube 1·8–2 mm long, lower lobe ± subulate, 2·5–4 mm long, lateral lobes 2–2·5 mm long and upper lobe, 2–3 mm long bifid to about the middle. Ovary sericeous, 8–9 ovulate; style flat glabrous. Pod flat upturned at end, sparsely appressed pubescens, 5–6 cm long, 4–5 mm wide, 6–9 seeded. Seeds lenticular, *ca* 3–4 mm long, 2–2·5 mm wide, without an aril.

Western Australia: Liveringa, Fitzroy River, Apr 1927, *Ewart* comm. *Gardner* (K). **Northern Territory:** 61 km from Tanami towards Gordon Downs, 19° 41′ S, 129° 25′ E, Aug 1971, *Gittins* 2369 (BRI); 21 miles NW of Wavehill police station, Jun 1949, *Perry & Lazarides* 2854 (BRI, K); 52 miles N of Tennant Creek, Apr 1948, *Perry* 634 (BRI, K); Limbunya, 17° 15′ S, 129° 45′ E, Apr 1974, *Dunlop* 3510 (BRI). **Queensland:** BURKE DISTRICT: 107 miles (170 km) from Camooweal on road to Burketown, Jun 1966, *Pedley* 2055 (BRI, K); Mt. Isa, Mar 1949, *McFarlane* (BRI), Oct 1974, *Specht & Rogers* 96 (BRI), Jan 1958, *Lavery* 19; Adels Grove, 130 km NNE of Camooweal, Feb 1947, *de Lestang* 197 (BRI); 14 miles SW of "Kamileroi" Stn, Aug 1953, *Lazarides* 3973 (BRI, K); Lawn Hill, May 1940, *Jensen* 66 (BRI).

In the eastern part of its range *T. virens* occurs on shallow soils with high levels of copper but collectors' notes indicate that in the Northern Territory it is found on shallow soils derived from sandstone and limestone, unlikely to be high in copper.

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Addendum

Burkart's treatment of *Prosopis* (J. Arnold Arbor. vol. 57. 1976) differs to some extent from the one presented here. *P. pallida* HBK. and *P. limensis* Benth. are treated as being conspecific, with *White* 2390 being cited under *P. pallida*. *Everist* 5902 which I have referred to *P. flexuosa* is cited by Burkart under *P. velutina*. The specimen (in fruit) is however a good match for *Wedermann* 455 (K, in flower) referred by Burkart to *P. flexuosa*.